

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
25 November 2004 (25.11.2004)

PCT

(10) International Publication Number  
**WO 2004/102739 A1**

(51) International Patent Classification<sup>7</sup>: **H01Q 3/36**,  
3/40, 1/24, 21/00

(21) International Application Number:  
PCT/GB2004/002016

(22) International Filing Date: 10 May 2004 (10.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0311371.9 17 May 2003 (17.05.2003) GB  
0311739.7 22 May 2003 (22.05.2003) GB

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

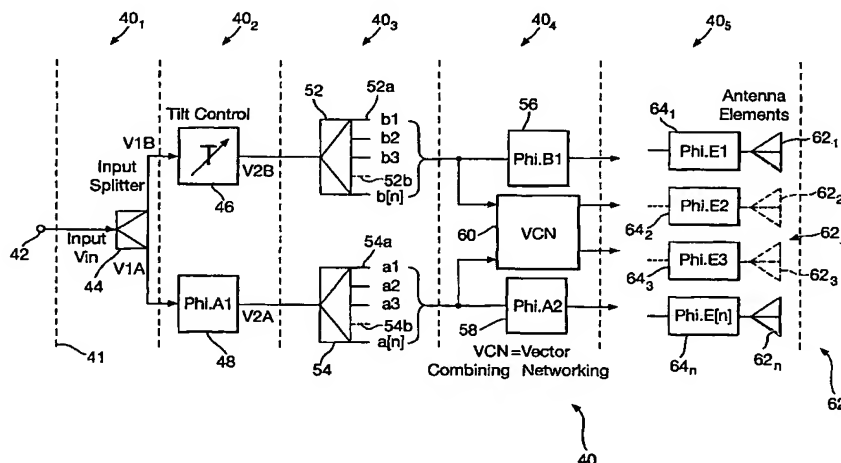
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

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(54) Title: PHASED ARRAY ANTENNA SYSTEM WITH ADJUSTABLE ELECTRICAL TILT



(57) Abstract: A phased array antenna system with adjustable electrical tilt includes an array (62) of antenna elements 62<sub>1</sub>, to 62<sub>10</sub>. It has a splitter (44) dividing a radio frequency (RF) carrier signal into two signals between which a phase shifter (46) introduces a variable phase shift. Further splitters (52) and (54) divide the relatively phase shifted signals into two sets of five signals. Four of each of the sets of five signals are vectorially combined in a network of 180 degree hybrid couplers 60<sub>1</sub>, to 60<sub>4</sub>. This provides vector sum and difference components which together with the fifth members of the sets are fed to respective fixed phase shifters (56, 58) and 64<sub>1</sub>, to 64<sub>10</sub>. The phase shifters 64<sub>1</sub>, to 64<sub>10</sub> provide signals which are appropriately phased for use as phased array drive signals for respective antenna elements 62<sub>1</sub>, to 62<sub>10</sub>. Adjustment of the single phase shift provided by the variable phase shifter (46) changes the angle of electrical tilt of the entire antenna array (62).



**Published:**

— with international search report

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